

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
31 March 2005 (31.03.2005)

PCT

(10) International Publication Number  
WO 2005/028129 A1

(51) International Patent Classification<sup>7</sup>: B07C 5/344, G01V 3/10

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(21) International Application Number: PCT/GB2004/003953

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(22) International Filing Date: 16 September 2004 (16.09.2004)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 0322224.7 23 September 2003 (23.09.2003) GB

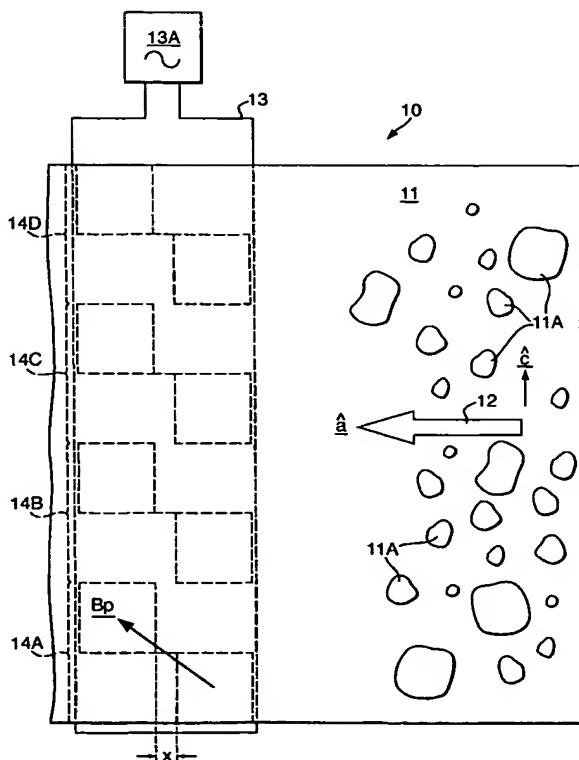
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(54) Title: APPARATUS AND METHOD FOR ESTABLISHING THE POSITIONS OF METAL OBJECTS IN AN INPUT STREAM



(57) Abstract: Apparatus (10) for establishing the positions of metal objects in a mixed input stream of both metal and non-metal objects, the apparatus comprising a differential metal-detecting coil (14A) having a first coil portion wound in a first sense and a second coil portion of generally similar shape and size to the first, wound in a second sense opposite to the first sense, and conveying means (11) for moving objects with respect to, and past, the, differential metaldetecting coil in a plane and in a direction with unit vector  $\hat{a}$ , characterised in that the second coil portion is displaced from the first coil portion by a displacement  $B$  having a component in the plane in a direction with unit vector  $b$ , wherein  $0 < \cos^{-1} \hat{a} \cdot b < \pi/2$ , and in that the apparatus further comprises analysing means for analysing the form of the output voltage of the coil as a function of time to establish the position of said metal objects in a direction  $c$  in the plane, where  $c$  is defined by  $\hat{a} \cdot c = 0$ .

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(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

— *with international search report*

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